National Institute of Environmental Health Sciences

Reflections on the use of Bayesian belief networks for adaptive management

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Abstract:

A broad range of tools are available for integrated water resource management (IWRM). In the EU research project NeWater, a hypothesis exists that IWRM cannot be realised unless current management regimes undergo a transition toward adaptive management (AM). This includes a structured process of learning, dealing with complexity, uncertainty etc. We assume that it is no longer enough for managers and tool researchers to understand the complexity and uncertainty of the outer natural system-the environment. It is just as important, to understand what goes on in the complex and uncertain participatory processes between the water managers, different stakeholders, authorities and researchers when a specific tool and process is used for environmental management. The paper revisits a case study carried out 2001-2004 where the tool Bayesian networks (BNs) was tested for groundwater management with full stakeholder involvement. With the participation of two researchers (the authors) and two water managers previously involved in the case study, a qualitative interview was prepared and carried out in June 2006. The aim of this ex-post evaluation was to capture and explore the water managers' experience with Bayesian belief networks when used for integrated and adaptive water management and provide a narrative approach for tool enhancement.

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Resource Description

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker, Public, Researcher

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Food/Water Security

Extreme Weather Event: Drought, Flooding

Food/Water Quality: Chemical

Geographic Feature: ☑

resource focuses on specific type of geography

Freshwater, Other Geographical Feature

Other Geographical Feature : Groundwater

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Denmark

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Research Article, Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content